NEW MYCETOPHILIDAE FROM CALIFORNIA.

By Esther Guthrie, Stanford University, California.

During the fall, winter and early spring of 1915-16 a number of species of fungi was collected by the writer, in the environs of Stanford University for the purpose of studying Mycetophilid fauna.

The collection consisted of twenty-one species of fungi. These were determined for me by Prof. McMurphy of the Botany Department.

Some of these fungi furnished no insects while others furnished insects of several species, as shown in the appended table—the same species, in some cases, being found in more than one species of fungus.

The following species are described as new.

I. **Mycetophila maculosa** n. sp.

Male: Length 4 mm. Head yellowish; antennæ brownish; scape yellowish, flagellum gradually darkening from base to tip. Humerus yellow; pleuræ brownish. Two vittæ on dorsum, continuing over scutellum. Metanotum brown with narrow light median line. Hairs pale; setæ dark. Abdomen brown; posterior margin of second and succeeding segments narrowly yellow; Hypopygium (Plate XXV, A) coxæ and legs yellow; middle and hind coxæ with spot on posterior surface. Tips of middle and hind femora and metatarsi narrowly dark brown. No setæ on flexor surface of middle tibiæ; two ranges of setæ on extensor surface of hind tibiæ. Fore metatarsis about 7-8 as long as tibiæ; hind metatarsi about .9 as long as remaining joints taken together. Wing, yellowish gray, hyaline; dark brown spot at cross veins; barely clouded nearly midway between cross veins and apical margin, extending over marginal and first submarginal cells. Branches of cubitus not divergent. (Plate XXV, Fig. 1a). Halteres yellow.

Female: Same as male, with some little variations in color.

Reared from *Pleurotus ostreatus.* California Redwood Park, October, 1915.

Type No. 569-5-1, L. S. J. U., Entomological Museum.

II. **Mycetophila permata** n. sp.

Male: Length 4 mm. Head dark brown. Two ocelli contiguous to eye margin. Antennæ lighter brown, longer than head and thorax; scape, base of flagellum and palpi yellow. Thorax brown; three coalesced broad brown stripes on mesonotum, the two lateral ones

crossing the scutellum. Pleuræ dark brown, setæ brown, hairs yellow; metanotum brown. Hypopygium small, yellow (Plate XXV, B). Coxæ and legs yellow; brown spot on posterior lateral base of middle and hind coxæ. Tips of middle and hind femora brown. Middle tibiæ with three setæ on the flexor surface and two ranges of setæ on the extensor surface. Wing yellowish hyaline, with central brown spot and preapical fascia distinct across M_3 (Plate XXV, Fig. 1b). Halteres very pale.

Female differs in having a wing cloud in anal cell, close to Cu_2.

Reared from *Polyporus sulphureus*. Stanford University, October.

Type No. 569-2-1, L. S. J. U., Entomological Museum.

III. **Mycetophila alata** n. sp.

Male: Length 4 mm. Antennæ brown, palpi brown. Thorax brown; three dark brown, broad vittæ on the mesonotum. Pleuræ brownish; metanotum brown; setæ brown hairs pale. Abdomen dark brown; hypopygium small, yellow (Plate XXVI). Coxæ and legs yellow. Tips of middle and hind femora brown. Middle tibiæ with three setæ on flexor surface, and two ranges of setæ on extensor surface. Wings yellowish hyaline, with central brown spot and preapical fascia arising at tip of R_1 (Plate XXVI, Fig. 2a). Halteres pale.

Female: Differs in having scape and base of flagellum yellow, and wing cloud in anal cell.

Reared from *Polyporus sulphureus*. Stanford University, December.

Type No. 569-6-1, L. S. J. U., Entomological Museum.

IV. **Allodia dentica** n. sp.

Male: Length 5 mm. Lateral ocelli contiguous to eye margin; middle ocellus smaller and in a direct line with the two lateral ones. Vertex brown; face, palpi and scape yellow; flagellum brownish. Antennæ not as long as head and thorax together. Thorax yellowish; mesonotum with three brown stripes, the median one broadening anteriorly and extending forward to anterior margin of mesonotum. Scutellum yellowish with four large setæ near distal margin. Metanotum brown with narrow light median line. The pleuræ yellow; setæ dark brown; hairs pale. Abdomen yellowish; venters yellow, dorsum brownish, with 5th and 6th segments widely brown. Coxæ and legs yellow; tibial spurs brownish. Fore metatarsus shorter than the tibia and longer than the fore coxa. Five setæ above the fore coxa on the humerus; mesosternum without setæ; four setæ on mesosternum above hind coxæ. Second tarsal joint with a peculiar cupped and comb-like arrangement, with four sharp spines laterad and basal to the comb (Plate XXVII, Figs. 5, 5a). Wings yellowish hyaline; subcosta ends in R_1; cubitus forks slightly proximad of proximal end of cross-vein (Plate XXVII, Fig. 3a). Hypopygium as shown on Plate XXVII, lower forceps terminating in broad chitinized process which terminates in a row of blunt teeth (Plate XXVII, Fig. 3). Halteres yellow.

Reared from *Pleurotus ostreatus*, *Polyporus sulphureus*, October and December, 1915, California Redwood Park.

Type No. 569-1, L. S. J. U., Entomological Museum.

Va. *Genus **Johannseni** n. genus.

Front narrow; 2 lateral ocelli contiguous to eye margin; 1st and 2nd palpal joints slightly swollen, 1st little longer than 2nd, 3rd nearly equalling 1st and 2nd in length. Antennæ as long as thorax, slightly tapering toward tip. Abdomen compressed. Hypopygium of male small (Plate XXVI, Fig. 3, 4, 5, 6,). Legs short, femora moderately broad, flattened; tibia strong, enlarged at ends, with long spurs and strong setæ. Posterior basal setæ of hind coxæ present. Subcosta short, ending in R_1; costa not produced beyond the Rs. Fork of media under base of Rs. Cubitus forks distad of fork of M. Anal vein long and stout, reaching below fork of Cu. (Plate XXVI, Fig. 2b).

Differs from *Brachypeza* in wing venation, and antennal structure; from *Allodia* in structure of tibia, wing markings and size of tibial setae; from both in having but two ocelli, and in the presence of the strong first anal vein.

Reared from *Polyporus sulphureus*. October.

Type specimens deposited in museum collection at Stanford University.

Vb. **Johannseni aurei** n. sp.

Male: 5 mm. long. Robust. Antennæ as long as thorax; scape yellow; flagellum brownish. Palpi, proboscis and face yellow; vertex with darker transverse fascia. Hairs yellow; on each side a row of brown setæ extending ventrad from ocellus over the gena. Thorax yellow; scutellum with two basal brown spots, 4 marginal setæ. Row of yellow hairs on anterior margin of mesonotum. Pleuræ yellow. Abdomen reddish-yellow; hypopygium small (Plate XXVI). Coxæ and legs yellow, stout, tibia broadened at end. Femora reddish-brown at tips; tarsi brownish. Wings grayish hyaline with central black spot. Large preapical fascia, and cloudy about the margin. (Plate XXVI, Fig. 2b). Halteres yellow.

Female same.

Reared from *Polyporus sulphureus*. October. California Redwood Park.

Type No. 569-7-1, L. S. J. U., Entomological Museum.

*I take pleasure in naming this genus for Professor Johannsen of Cornell University, who kindly compared my new species with types of nearly related species.

The following table shows the fungus host for each species of Mycetophilid collected.

FUNGUS	COMMON NAME	DATE	LOCALITY	MYCETOPHILIDAE REARED
Pleurotus ostreatus	Oyster mushroom	Oct., 1915	Calif. Redwood Park	Mycetophila maculosa n. sp. Johannseni aurei n. s. Mycetophila alata n. s. Mycetophila mutica Loew Allodia dentica n. s.
Polyporus sulphureus	Sulphur-colored mushroom	Oct., 1915	Calif. Redwood Park	Mycetophila permata n. s. Mycetophila alata n. s. Mycetophila mutica Loew Allodia dentica n. s.
Armellaria mellea	Honey mushroom	Oct., 1915	Stanford Univ. vicinity	Mycetophila punctata Meigen
Pleurotus Subsapidus	Sapid mushroom	Dec., 1915	Stanford Univ. vicinity	Mycetophila maculosa n. s. Mycetophila punctata Meigen
Hypholoma fasaculare		Jan., 1916	Stanford Univ. vicinity	No insects
Hypholoma appendiculata	Appendiculate mushroom	Jan., 1916	Stanford Univ. vicinity	Dipteron
Hydrocybe?		Jan., 1916	Stanford Univ. vicinity	Mycetophila punctata Meigen Exechia sp.
Boletus granulatus	Granulated mushroom	Jan. & Feb., 1916	Stanford Univ. vicinity	Mycetophila punctata Meigen
Amanita muscaria	Fly mushroom	Jan., 1916	Milbrae	Mycetophila punctata Meigen
Russula?		Jan., 1916	Stanford Univ.	Mycetophila punctata Meigen
Tricholoma personatum	Masked mushroom	Jan., 1916	Stanford Univ.	Boletophila hybrida Meigen
Cortinarius?		Jan., 1916	Stanford Univ.	Boletophila hybrida Meigen
Agaricus?		Jan., 1916	Stanford Univ.	Dipteron
Clitocybe?		Jan. & Feb., 1916		Exechia sp. Meigen Mycetophila punctata Meigen

FUNGUS	COMMON NAME	DATE	LOCALITY	MYCETOPHILIDAE REARED
Locellina stercoraria		Feb., 1916	Stanford Univ.	Exechia sp. Meigen Mycetophila punctata Meigen
Lactaria insulsa	Pepper mushroom	Feb., 1916	Stanford Univ.	Mycetophila mutica Loew
Paxillus?		Feb., 1916	Stanford Univ.	Mycetophila punctata Meigen
Coprinus comatus	Shaggy maid	Mar., 1916	Stanford Univ.	Mycetophila punctata Meigen
Coprinus atramentarius	The Inky mushroom	Mar., 1916	Stanford Univ.	No insects
Stropharia semigloboides		Mar., 1916	Stanford Univ.	Mycetophila punctata Meigen
Helvella?		Mar., 1916	Stanford Univ.	No insects

The most abundant and most common Mycetophilid species found during the season was Mycetophila punctata Meigen. The eggs of this species were collected from between the gills of a Hydrocybe. (?) They were small, white, oval bodies, lying singly between the gills. Several of these were individually isolated in small vials with a portion of food. These eggs hatched in from twenty-four to forty-eight hours.

The larvae fed in the fleshy portion of the fungus, and passing quickly through five instars, pupated within six or eight days. Pupation took place within a silken cocoon, usually in the ground, and the adult insect issued within three days.

EXPLANATION OF PLATES.

Plate XXV.

1a, Wing of *Mycetophila maculosa* n. sp.; A, Hypopygium of *Mycetophila maculosa* n. sp., (lateral aspect); 1, dorsal aspect of hypopygium; 2, upper forceps (one side), of hypopygium; 3, lower forceps (one side), of hypopygium; 4, ventral sclerite of hypopygium.

1b, Wing of *Mycetophila permata* n. sp.; B, Hypopygium of *Mycetophila permata* n. sp. (lateral aspect); 5, lower forceps; 6, upper forceps; 7, dorsal sclerite; 8, ventral sclerite.

Plate XXVI.

2a, Wing of *Mycetophila alata* n. sp. A, Hypopygium of *Mycetophila alata* n. sp. (lateral aspect); 1, dorsal sclerite; 2, upper forceps; 3, lower forceps.

2b, Wing of *Johannseni aurei* n. sp. (lateral aspect); B, hypopygium of *J aurei* 4, dorsal sclerite; 5, upper forceps; 6, lower forceps.

Plate XXVII.

3a, Wing of *Allodia dentica* n. sp. A, Hypopygium of *Allodia dentica* n. sp. (lateral aspect); 1, dorsal sclerite; 2, upper forceps; 3, lower forceps; 4, ventral sclerite; 5, fore-tarsus (except first tarsal segment); 5a, second tarsal segment.